

## VACUBRAZE 33 & 33SSK

### ***NOMINAL COMPOSITION***

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Aluminum	Remainder
Silicon	12.0% ± 1.0%
Other Elements (Each)	0.05% Max
Other Elements (Total)	0.15% Max

### ***PHYSICAL PROPERTIES***

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Color	Grayish-White
Melting Point (Solidus)	1070°F (577°C)
Flow Point (Liquidus)	1080°F (582°C)
Brazing/Soldering Range	1080°F - 1120°F (582°C - 604°C)

### ***PRODUCT USES***

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Vacubraze 33 is a powder aluminum filler metal and an organic binder. It is used for joining aluminum alloys by the fluxless vacuum brazing process. The binder provides excellent paste adhesion to the aluminum parts during fixturing and loading, but vaporizes during the early part of the brazing cycle. At high temperatures, no residue remains that can interfere with wetting and flow of the alloy. Vacubraze 33 does not contain any chloride or fluoride flux salts.

Vacubraze 33 results in completed joints and generous, smooth fillets. The most effective use of Vacubraze 33 is as supplementary filler metal selectively applied to alloy starved joints. It should be applied adjacent to the joint, not in the joint. Vacubraze 33 is normally used in conjunction with brazing sheet or foil. Joints with brazing sheet facilitates the flow of Vacubraze 33 into the capillary.

Vacubraze 33SSK offers excellent vertical slump characteristics and will remain in place during the initial phase of heating. It is also more suitable for automatic dispensers.

Vacubraze 33 & 33SSK do not contain magnesium. In vacuum brazing of aluminum, magnesium acts as a residual oxygen and water vapor getter and it modifies the oxide film on the surface of aluminum. 280 Magnesium is a preferred source of magnesium.

Mixing may be required before use. Paste may be cleaned or thinned with mineral spirits.

### ***PROPERTIES OF BRAZED JOINTS***

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The properties of a brazed joint are dependent upon numerous factors including base metal properties, joint design, metallurgical interaction between the base metal and the filler metal. Joint clearances of 0.002- 0.004 in (0.051 - 0.102 mm) per side are optimum for achieving highest joint strength. Joints with increased clearances can still produce adequate joint strengths depending on final operating conditions.

## ***WARRANTY & STORAGE***

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Lucas-Milhaupt, Inc. warrants their Brazing and Soldering Paste products for 90 days from the date of shipment if stored in the original unopened container. Optimal storage conditions would be 65°F (18°C) - 75°F (24°C), clean and dry. It is recommended that the paste products are stored away from direct heat. Paste may require mixing to regain a homogenous mixture before application.

The 90 day warranty should not be interpreted as the shelf or useful life of the product. The paste products may be used well beyond the 90 day warranty, unless customer testing or production results indicate unsatisfactory performance of the product.

## ***AVAILABLE PACKAGING***

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Vacubraze 33 & 33SSK Aluminum Vacuum Brazing paste is available in various size syringes, jars and cartridges.

## ***SPECIFICATIONS***

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Aluminum powder chemistry is manufactured in accordance to the following specifications:

- AWS A5.8 (BalSi-4)
- AA 4047
- AMS 4185

## ***APPLICABLE PRODUCT CODE(S)***

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The applicable Lucas-Milhaupt product code(s) for this technical data sheet: 84-376.

## ***SAFETY INFORMATION***

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The operation and maintenance of brazing equipment or facility should conform to the provisions of American National Standard (ANSI) Z49.1, "Safety in Welding and Cutting". For more complete information refer to the Material Safety Data Sheet for VACUBRAZE 33 & 33SSK.

## ***WARRANTY CLAUSE***

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